Kansas Agricultural Experiment Station Research Reports

Volume 0
Issue 12 *Keeping up with Research*

Article 138

1979

Using Foliar and Planting-time Insecticides to Control Chinch Bugs in Grain Sorghum

Gerald Wilde

Terry Mize

Using Foliar and Planting-time Insecticides to Control Chinch Bugs in Grain Sorghum

Keywords

Keeping up with research; 42 (Mar. 1979); Insecticides; Chinch bugs; Grain sorghum; Foliar; Planting-time

AES Keeping Up With Research 42

MARCH 1979

Using Foliar and Planting-time Insecticides to Control Chinch Bugs in Grain Sorghum[1]

Gerald Wilde and Terry Mize

Chinch bug infestations have been more widespread and intense in eastern Kansas in recent years than since the outbreaks of the 1930's and 50's. Field insecticide tests in 1977 indicated that correctly applying foliar insecticides significantly reduces chinch bug numbers, and greenhouse tests suggested that some granular treatments at planting time will control chinch bugs on seedling sorghum, so tests were continued in 1978.

In the first test, planted June 5, a granular application at planting time was evaluated 8 and 21 days later (Table 1). The most effective treatment on day 8 (June 13) was an in-furrow treatment of carbofuran. No band treatments gave good control. At 21 days (June 26) carbofuran in-furrow or a band gave some control, but left some chinch bugs surviving on all plants.

In the second test, planted June 29, planting-time applications were evaluated 14 days later (Table 2). In-furrow treatments of carbofuran and bands of carbofuran or phorate significantly reduced chinch bug numbers. A 1.2-inch rain 11 days after planting probably accounted for the effectiveness of the band treatments in the second test.

1. Mention of a compound and results do not constitute a recommendation by the Kansas Agricultural Experiment Station or the Kansas Cooperative Extension Service.

AGRICULTURAL EXPERIMENT STATION
Kansas State University, Manhattan
Floyd W. Smith, Director

Table 1.—Chinch bug control on sorghum 8 and 21 days after planting with indicated planting-time treatments. Manhattan, KS, 1978.

Treatment	Formulation	lb. AI/Acre 40" rows	Placement	Avg. live chinch bugs per caged plant[3]	
				8 days[1]	21 days[2]
Untreated control				6.6 ab	20.5 abc
Disulfoton (Disyston)	15G	1.0	band	7.1 a	13.0 cd
Carbofuran (Furadan)	10G	0.5	band	7.1 a	9.6 de
Phorate (Thimet)	15G	1.0	band	6.3 abc	24.5 a
Carbofuran (Furadan)	10G	1.0	band	5.1 bc	5.3 ef
Carbofuran (Furadan)	10G	0.75	band	4.7 c	13.5 cd
Carbofuran (Furadan)	10G	0.25	furrow	1.3 d	18.3 abc
Carbofuran (Furadan)	10G	0.5	furrow	0.7 d	5.3 ef
Carbofuran (Furadan)	10G	0.75	furrow	0.3 d	4.6 ef
Carbofuran (Furadan)	10G	1.0	furrow	0.0 d	4.6 ef

1. Ten adult chinch bugs caged per plant on 8 plants.
2. Forty chinch bug nymphs caged per plant on 6 plants.
3. Means with the same letter in the vertical column do not differ significantly (0.05).

Table 2.—Chinch bug control on sorghum 14 days after planting with indicated planting-time treatments. Manhattan, KS, 1978.

Treatment	Formulation	lb. AI/Acre 40" row	Placement	Avg. live chinch bugs per caged plant[1]
Untreated control				10.8 b
Disulfoton (Disyston)	15G	1.0	band	8.8 b
Phorate (Thimet)	15G	1.0	band	5.0 c
Carbofuran (Furadan)	10G	0.25	furrow	4.3 cd
Carbofuran (Furadan)	10G	0.5	furrow	2.1 cd
Carbofuran (Furadan)	10G	1.0	furrow	1.5 de
Carbofuran (Furadan)	10G	0.75	furrow	1.3 de
Carbofuran (Furadan)	10G	0.75	band	0.0 e
Carbofuran (Furadan)	10G	0.5	band	0.0 e
Carbofuran (Furadan)	10G	1.0	band	0.0 e

1. Twenty adult chinch bugs caged per plant on 6 plants. Means with the same letter do not differ significantly (0.05).

Of the granular tests, the carbofuran in-furrow treatment is registered for use on sorghum for chinch bug control. Both carbofuran and phorate band treatments are registered for use on sorghum for greenbug control, but not for chinch bugs. Disulfoton, registered as a band treatment for greenbug control, does not affect chinch bugs. Phorate should not be applied in-furrow at planting time because of its phytotoxicity.

Foliar applications of carbaryl, carbofuran, and endrin were tested on seedling sorghums, though endrin is not registered for sorghum crops. The other two are registered for chinch bug control. We included it as a chlorinated hydrocarbon to which control with newer insecticides can be compared. The foliar sprays were applied with a one-nozzle hand sprayer delivering 16 gal. of water per acre. Results of two tests at Abilene (Table 3) and one test at Manhattan (Table 4) indicate that all those insecticides significantly reduced chinch bug num-

Table 3.—Chinch bug control on seedling sorghum with foliar applications of indicated treatmtents, Abilene, KS. 1978.

Treatment	AI/Acre lbs.	Formulation	Avg. chinch bugs/plant[1]	
			Site 1	Site 2
Carbofuran (Furadan)	0.5	4F	3.2 a	0.0 a
Carbaryl (Sevin)	2.00	80WP	1.0 a	2.3 a
Untreated control			87.0 b	9.7 b

1. Average number of chinch bugs on 10 plants. Means with the same letter do not differ significantly (0.05).

Table 4.—Chinch bug control on seedling sorghum with indicated foliar applications. Manhattan, KS. 1978.

Treatment	lbs. AI/Acre	Formulation	Avg. chinch bugs per 20 ft. of row[1]
Carbaryl (Sevin)	2.0	80WP	11.1 a
Carbofuran (Furadan)	0.5	4F	15.1 a
Endrin[2]	0.25	1.6E	28.0 a
Untreated control			96.2 b

1. Means with the same letter do not differ significantly (0.05).
2. Not registered for use on sorghum.

bers. But their residual poison does not extend more than 3 days, so chinch bugs migrating into a sorghum field could make repeated applications necessary.

The most important point in controlling chinch bugs with foliar sprays is to use drop nozzles or other methods to direct sprays to the base of plants where bugs congregate and to use as much water as possible, preferably at least 16 to 20 gallons per acre.

Most important in applying carbofuran at planting time is application in the seed furrow, which is more effective than the band treatments because it does not require a rain for treatment to control chinch bugs.

Agricultural Experiment Station
Kansas State University
Manhattan 66506

KSU
KANSAS STATE UNIVERSITY

Keeping Up With Research 42 March 1979